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Apicheirospora sinensis gen. & sp. nov. from China

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Abstract—A new anamorphic genus and species, *Apicheirospora sinensis*, collected on dead branches in the Nabanhe Nature Reserve, Yunnan Province, China, is described and illustrated. The fungus is distinguished by macronematous, unbranched conidiophores with monoblastic, integrated, terminal, determinate or percurrently elongating conidiogenous cells, producing smooth conidia, which are holoblastic, solitary, acrogenous, dictyoseptate, variable in shape, cheiroid, applanate, occasionally branched, composed of several compact rows of cells, which form a compact cluster after successively dichotomous branching, brown to pale brown, evenly pigmented, with hyaline appendages.

Key words—asexual *Ascomycota*, hyphomycetes, new taxa, taxonomy

Introduction

The Nabanhe Nature Reserve is located in Xishuangbanna Prefecture, Yunnan Province, China, and in the western side of the Lancang River. It lies in 22.07–22.28°N 100.53–100.73°E and covers an area of 266 km^2. The average annual minimum and maximum temperatures are 18–22°C, and annual precipitation is 1100–1600 mm. The main forest types are tropical rainforest,

tropical monsoon forest and subtropical evergreen broad-leaved forest (Chao 2010). Such conditions create a very wide range of habitats favoring the growth of various microbial species. However, its mycobiota, especially microfungi, is poorly understood. During our mycological surveys in this reserve, an interesting fungus was collected from dead branches. Close examination found significant differences from previously described hyphomycetes (Seifert & al. 2011), and a new genus, *Apicheirospora*, is erected for it.

Materials & methods

Samples of dead branches were collected from humid environments and river bank in the forest ecosystems of the Nabanhe Nature Reserve, Yunnan Province, China, and placed in Ziploc™ bags for transporting to the laboratory, where the samples were processed and examined as described by Ma & al. (2011). Fungi were mounted in a drop of lactic acid on microscope slides, examined and photographed with an Olympus microscope (model BX 53), with a 100× (oil immersion) objective at the same background and scale. Adobe Photoshop 7.0 was used for image processing to assemble photomicrographs into a plate. Isolation of the fungus failed on potato dextrose agar (PDA) at 25°C after several attempts. The specimen was deposited in the Herbarium of Jiangxi Agricultural University, Plant Pathology, Nanchang, Jiangxi, China (HJAUP).

Taxonomy

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IF 559613

Differs from *Digitoramispora* by its applanate, cheiroid, evenly pigmented conidia with appendages and several compact rows of cells; from *Xiuguozhangia* by its integrated, terminal conidiogenous cells; and from *Piricaudiopsis* by its monoblastic conidiogenesis.

Type species: *Apicheirospora sinensis* Jing W. Liu & al.

Etymology: *api-* (Latin) meaning apiculate + *cheirospora* (Latin) referring to the type of conidia of this anamorphic fungus.

Conidiophores macronematous, mononematous, unbranched, erect, smooth, septate, brown to dark brown. Conidiogenous cells monoblastic, integrated, terminal, determinate or indeterminate, with several percurrent elongations, dark brown to brown. Conidial secession schizolytic. Conidia solitary, acrogenous, eudictyoseptate, cheiroid, applanate, composed of several compact, subparallel rows of cells, produced after successively dichotomous

branching, brown to pale brown, sometimes the apical cells produce unbranched or branched, septate, pale brown to subhyaline appendages.

Apicheirospora sinensis Jing W. Liu, X.G. Zhang, R.F. Castañeda & Jian Ma, **sp. nov.** Fig. 1

IF 559614

Differs from *Digitoramispora* spp. by its applanate, cheiroid, evenly pigmented conidia with appendages and several subparallel, compact rows of cells.

Type: Yunnan Province: Xishuangbanna Dai Autonomous Prefecture, the Nabanhe Nature Reserve, on dead branches of an unidentified broadleaf tree, 12 July 2021, J.W. Liu (**Holotype**, HJAUP M2074).

Etymology: refers to China, in which the fungus was collected.

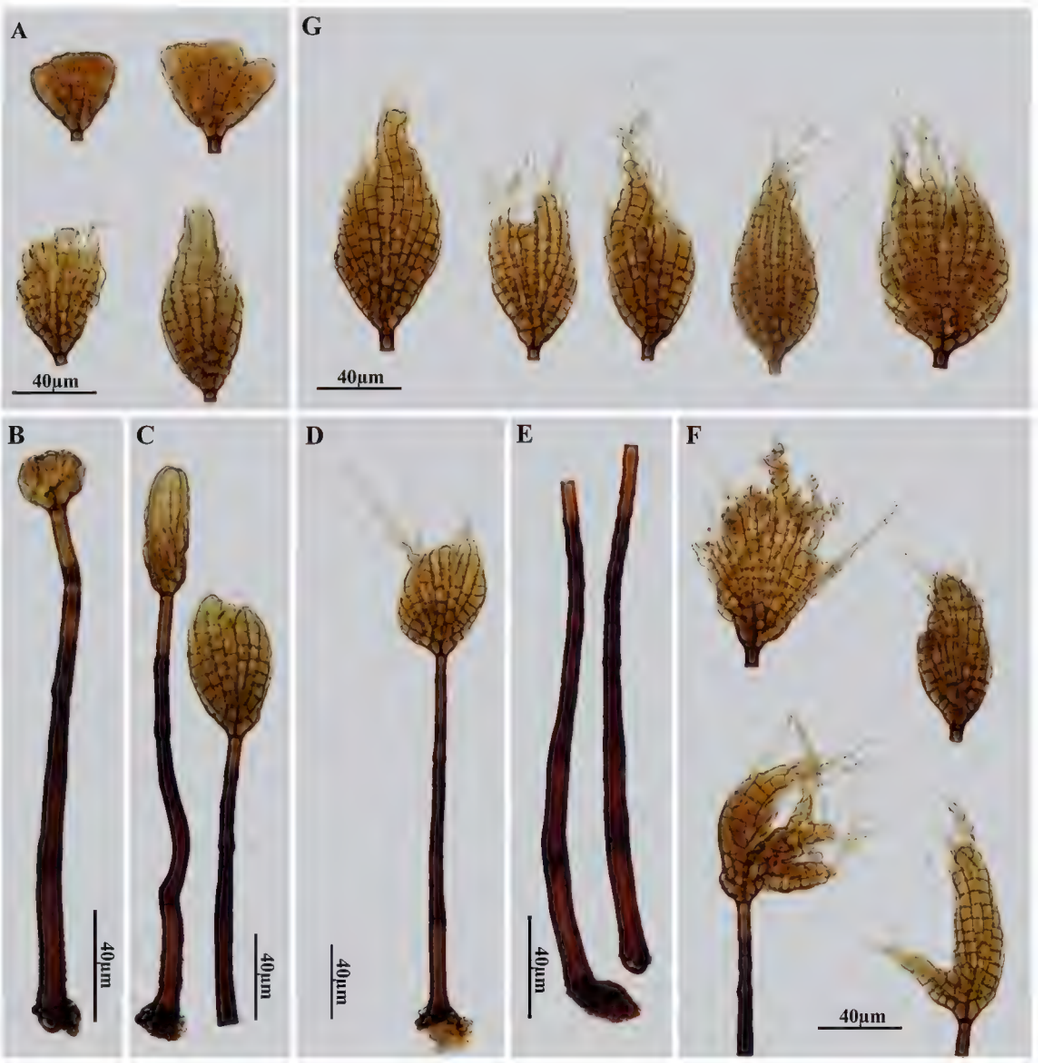

Fig. 1. *Apicheirospora sinensis* (holotype, HJAUP M2074). A. Developing conidia; B–D. Conidiophores, conidiogenous cells, and conidia; E. Conidiophores and conidiogenous cells; F. Conidiogenous cells and conidia. G. Conidia.

Colonies on the natural substrate effuse, dark brown, hairy. Mycelium partly superficial and immersed, composed of branched, septate, pale brown to brown, smooth-walled hyphae. Conidiophores macronematous, mononematous, single, unbranched, erect, straight or slightly flexuous, cylindrical, smooth, 5–14-septate, thick-walled, dark brown to brown, 125–215 × 7.5–10 µm. Conidiogenous cells monoblastic, integrated, terminal, determinate or with several percurrent elongations, cylindrical, truncate at the apex following conidium disarticulation, smooth, dark brown to brown, 13–20 × 5–6.5 µm. Conidial secession schizolytic. Conidia solitary, dry, acrogenous, eudictyoseptate, variable in shape, cheiroid, applanate, composed of several compact, subparallel rows of cells, mostly forming 1(–2) compact cluster produced after successive dichotomous branching, brown to pale brown, smooth, 67.5–113 × 32.5–60 µm; cuneate basal cell, sometimes the apical cells producing slender, smooth, simple or branched, divergent, straight, curved to coiled, septate, pale brown to subhyaline appendages, up to 80 µm long, 2.5–4 µm wide.

Discussion

Apicheirospora sinensis is unique in its monoblastic, integrated, terminal, determinate or percurrently elongating conidiogenous cells on macronematous, unbranched conidiophores. It develops smooth conidia that are holoblastic, solitary, acrogenous, dictyoseptate, applanate, cheiroid, occasional branched, composed of several compact rows of cells, that form a compact cluster after successive dichotomous branching, brown to pale brown, evenly pigmented, with appendages and schizolytic conidial secession. It has the same conidial ontogeny as *Ceratosporella* Höhn. (Höhnel 1923), *Digitoramispora* R.F. Castañeda & W.B. Kendr. (Castañeda-Ruíz & Kendrick 1990), *Pseudoacrodictys* W.A. Baker & Morgan-Jones (Baker & Morgan-Jones 2003), and *Xiuguozhangia* K. Zhang & al. (Zhang & al. 2014). However, *Digitoramispora* differs by its dictyoseptate conidia with subhyaline or colorless terminal cell of each row; *Pseudoacrodictys* by its subglobose, broadly pyriform to turbinate or somewhat irregularly shaped conidia bearing numerous septa arranged in an oblique fashion with internal cells often becoming compressed and contorted; *Ceratosporella* by its divergent and arm-shaped conidia with all arms arising from the basal cell; and *Xiuguozhangia* by its discrete conidiogenous cells with conidia bearing 0–4 appendages. *Apicheirospora* is also compared with *Piricaudiopsis* J. Mena & Mercado (Mena-Portales & Mercado-Sierra 1987) because of their similar conidial morphology, but *Piricaudiopsis* has

monotretic, integrated and discrete conidiogenous cells, which differ from the monoblastic conidiogenesis of *Apicheirospora*. *Distoceratosporella* J.S. Monteiro & al. and *Pararhexoacrodictys* Cantillo & Gusmão are somewhat similar to *Apicheirospora*, but *Distoceratosporella* has distoseptate conidial arms that arising from the basal cell (Monteiro & al. 2017); and *Pararhexoacrodictys* conidia have thin septa than appear to be collapsed or distorted, with basal cell delimited by a transversal septum, and seceding rhexolytically (Cantillo & al. 2019).

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